<u>Amendments to the Claims</u>

1. (Previously Presented) Method for interference suppression for time-division multiple access (TDMA) and/or frequency division multiple access (FDMA) transmission, which at least approximately can be described as pulse amplitude modulation, with an arbitrary number of receive antennas, which comprises the following steps:

a)   filtering of at least one complex-valued received signal $r_i(k)$ of one receive antenna with a filter with complex-valued coefficients $f_i(k)$ for generation of at least one output signal $y_i(k)$;

b)   forming at least one orthogonal projection of at least one output signal $y_i(k)$ onto a vector $\boldsymbol{p}_i$ which is assigned to this output signal $y_i(k)$; and

if the number of output signals $y_i(k)$ is one:

c1)   feeding the output signal $y_i(k)$ into a device for detection, especially equalization; or

if the number or output signals $y_i(k)$ is two or more:

d1)   summing of a majority, especially all of the output signals $y_i(k)$ for forming a sum signal $s(k)$; and

d2)   feeding the sum signal $s(k)$ into a device for detection, especially equalization,

wherein at least two received signals $r_i(k)$ are available and the corresponding at least two outputs $y_i(k)$ are projected onto identical vectors in step b).

2. (Cancelled)

3. (Previously Presented) Method for interference suppression for time-division multiple access (TDMA) and/or frequency division multiple access (FDMA) transmission, which at least approximately can be described as pulse amplitude modulation, with an arbitrary number of receive antennas, which comprises the following steps:

a)   filtering of at least one complex-valued received signal $r_i(k)$ of one receive antenna with a filter with complex-valued coefficients $f_i(k)$ for generation of at least one output signal $y_i(k)$;

b)   forming at least one orthogonal projection of at least one output signal $y_i(k)$ onto a vector $\boldsymbol{p}_i$ which is assigned to this output signal $y_i(k)$; and

if the number of output signals $y_i(k)$ is one:

c1)   feeding the output signal $y_i(k)$ into a device for detection, especially equalization; or

if the number or output signals $y_i(k)$ is two or more:

d1)   summing of a majority, especially all of the output signals $y_i(k)$ for forming a sum signal $s(k)$; and

d2)   feeding the sum signal $s(k)$ into a device for detection, especially equalization,

wherein feedforward filters of a decision-feedback-equalization (DFE) with real-valued feedback filter are used for filtering of the received signals in step a),

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which are optimized systematically,

in particular according to the criteria zero-forcing (ZF), minimum mean-squared (MMSE), or impulse truncation.

Claims 4-9. (Cancelled).

10. (Previously Presented) System for interference suppression for time-division multiple access (TDMA) and/or frequency division multiple access (FDMA) transmission, which at least approximately can be described as pulse amplitude modulation, comprising

- an arbitrary number of receive antennas;

- at least one filter device with complex-valued coefficients $f_i(k)$ for filtering of at least one complex-valued received signal $r_i(k)$ of one receive antenna for forming at least one output signal $y_i(k)$;

- at least one projection device for forming an orthogonal projection of the at least one output signal $y_i(k)$ onto a vector $\boldsymbol{p}_i$ which is assigned to this output signal; and

if the number of output signals $y_i(k)$ is one:

- a detection device which processes the output signal s(k); or

if the number or output signals $y_i(k)$ is two or more:

- a summation device for summing a majority, in particular all output signals

$y_i(k)$ for forming a sum signal $s(k)$; and

-        a detection device which processes the sum signal $s(k)$, wherein at least two

        received signals $r_i(k)$ are available

and the corresponding at least two outputs $y_i(k)$ are projected

onto identical vectors by the at least one projection device.

11. (Previously Presented) Receiver designed for acting in concert with one or

several receiving antennae for interference suppression for time-division multiple

access (TDMA) and/or frequency division multiple access (FDMA) transmission

comprising at least pulse amplitude modulation or binary continuous phase

modulation (CPM), comprising:

-        at least a filtering device including complex-valued coefficients $f_i(k)$, with the

        at least one filtering device being designed for filtering at least one complex-

        valued received signal $r_i(k)$ of a receiving antennae for generating at least one

        output signal $y_i(k)$;

wherein

        the receiver further comprises

-        at least one projection device to which the at least one output signal $y_i(k)$ is

        coupled for forming an orthogonal projection P_i of the at least one output

        signal $y_i(k)$ onto a direction vector $\boldsymbol{p}_i$ assigned to this output signal $y_i(k)$, with

        the dimension of the direction vector $\boldsymbol{p}_i$ irrespective of the number of receiving

        antennae being two; and

in case the number of the projections P_i is one:

- a device for detection to which the output signal of the projection P_i is

    coupled;

    or

in case the number of the projections is two or more:

- a device for summing a majority of the projections P_i for forming a sum signal

    $s(k)$; and

- a device for detection to which the sum signal $s[k]$ is coupled,

    wherein at least two received signals $r_i(k)$ are available

and the corresponding at least two outputs $y_i(k)$ are projected

onto identical vectors by the at least one projection device.

12. (Previously Presented) System for interference suppression for time-division

multiple access (TDMA) and/or frequency division multiple access (FDMA)

transmission, which at least approximately can be described as pulse amplitude

modulation, comprising

- an arbitrary number of receive antennas;

- at least one filter device with complex-valued coefficients $f_i(k)$ for filtering of at

least one complex-valued received signal $r_i(k)$ of one receive antenna for forming at

least one output signal $y_i(k)$;

- at least one projection device for forming an orthogonal projection of the at

least one output signal $y_i(k)$ onto a vector $\boldsymbol{p}_i$ which is assigned to this output signal;

and

if the number of output signals $y_i(k)$ is one:

- a detection device which processes the output signal

s(k); or

if the number or output signals $y_i(k)$ is two or more:

- a summation device for summing a majority, in particular all output signals

$y_i(k)$ for forming a sum signal s(k); and

- a detection device which processes the sum signal s(k),

wherein feedforward filters of a decision-feedback-equalization (DFE) with

real-valued feedback filter are used for filtering of the received signals, which are

optimized systematically, in particular according to the criteria zero-forcing (ZF),

minimum mean-squared (MMSE), or impulse truncation.

Claims 13-18. (Cancelled).

19. (Previously Presented) Receiver designed for acting in concert with one or

several receiving antennae for interference suppression for time-division multiple

access (TDMA) and/or frequency division multiple access (FDMA) transmission

comprising at least pulse amplitude modulation or binary continuous phase

modulation (CPM), comprising:

- at least a filtering device including complex-valued coefficients $f_i(k)$, with the

    at least one filtering device being designed for filtering at least one complex-

valued received signal $r_i(k)$ of a receiving antennae for generating at least one

output signal $y_i(k)$;

wherein

the receiver further comprises

- at least one projection device to which the at least one output signal $y_i(k)$ is

coupled for forming an orthogonal projection P_i of the at least one output

signal $y_i(k)$ onto a direction vector $\boldsymbol{p}_i$ assigned to this output signal $y_i(k)$, with

the dimension of the direction vector $\boldsymbol{p}_i$ irrespective of the number of receiving

antennae being two; and

in case the number of the projections P_i is one:

- a device for detection to which the output signal of the projection P_i is

coupled;

or

in case the number of the projections is two or more:

- a device for summing a majority of the projections P_i for forming a sum signal

$s(k)$; and

- a device for detection to which the sum signal $s[k]$ is coupled;

wherein feedforward filters of a decision-feedback-equalization (DFE) with

real-valued feedback filter are used for filtering of the received signals, which are

optimized systematically, in particular according to the criteria zero-forcing (ZF),

minimum mean-squared (MMSE), or impulse truncation..

Claims 20-25. (Cancelled).